

REMARKS

The Examiner is thanked for the thorough examination of the present application and the indication the claims 2-4, 6-9, and 11-16 contain allowable subject matter. However, the Office Action mailed October 11, 2005, has tentatively rejected claims 1, 5, and 17. For at least the following reasons, it is submitted that this application is in condition for allowance.

Claims 1, 5, and 17 were tentatively rejected under 35 U.S.C. 102(e) as allegedly anticipated by Jo *et al.* (U.S. Patent No. 6,842,158). The rejections are respectfully traversed.

It is well established that a reference may anticipate a claim within the purview of 35 USC section 102 only if all the features and all the relationships recited in the claim are taught by the reference structure either by clear disclosure or under the principle of inherency.

Applicant's independent claim 1 is directed to a multi-frequency antenna with a first operational frequency and a second operational frequency for a portable electronic device. The multi-frequency antenna comprises an antenna body and a ground plane. The antenna body includes a feed-in terminal, a ground terminal, a first radiation arm, and a second radiation arm. The first and second radiation arms are arranged in a symmetrically inward spiral form, share the feed-in terminal, and form a first current path and a second current path which realize the first and second operational frequencies respectively. The ground plane is coupled to the ground terminal and disposed with respect to the antenna body.

Significantly, there is no disclosure or suggestion by the cited reference of the claimed first and second radiation arms, which are arranged in a symmetrically inward spiral form, share the feed-in terminal, and form a first current path and a second current path which realize the first and second operational frequencies respectively, as expressly defined in claim 1.

The Office Action points to the disclosure of Jo et al. as teaching a first radiation arm and a second radiation arm recited in Applicant's claim 1. In particular, the Office Action relies on spiral conductors 16 and 18 in FIG. 1 and FIG. 6 of Jo et al. as being the first and second radiation arms, respectively. Applicant respectfully disagrees. Unlike the claimed embodiment, the spiral conductors 16 and 18 are disposed in an outward spiral form, and the spiral conductors 16 and 18 are separated and are connected to ground terminal 30 and feed terminal 22, respectively. The resonant frequency of the antenna 10 of Jo et al. is primarily determined by the total effective electrical length of the spiral conductors 16 and 18 (see col. 5, lines 46-48), and the Jo's antenna 10 has only one resonant or center frequency of 1.9 GHz (see col. 6, lines 1-4). That is, Jo's antenna 10 has only one operational frequency.

Accordingly, there is no disclosure or suggestion by the cited reference of the first and second radiation arms that are arranged in symmetrically inward spiral form, share the feed-in terminal, and form a first current path and a second current path which realize the first and second operational frequencies respectively, as expressly defined in claim 1. In fact, Jo et al. (FIGS. 1 and 6; col. 4, lines 55-67 to col. 6, lines 1-47) do not disclose or even suggest these features relating to radiating arms, as recited in claim 1.

For at least these reasons, the claimed structure is not disclosed (nor is it suggested) by Jo et al. Therefore, independent claim 1 is not anticipated (or rendered obvious) by the cited reference, and the rejection of claim 1 should be withdrawn. Moreover, as claims 2-4 depend from independent claim 1, claims 2-4 also are not anticipated by, or rendered obvious in view of, Jo et al. Accordingly, the rejection of claims 1-4 should be withdrawn.

Regarding independent claim 5, the Office Action points Jo et al. as allegedly disclosing a portable electronic device. It is noted that claim 5 includes features that are also embodied in

claim 1 (and which were discussed above). According, Applicant submits that claim 5 defines over the cited art for the same reasons discussed above in connection with claim 1. In particular, there is no disclosure or suggestion by Jo et al. of an antenna body including first and second radiation arms wherein the first and second radiation arms are arranged in symmetrically inward spiral form, share the feed-in terminal, and form a first current path and a second current path which realize the first and second operational frequencies, respectively, as defined in claim 5.

For at least the above reasons, it is respectfully submitted that independent claim 5 is not anticipated (or rendered obvious) by Jo et al. Moreover, since claims 6-9 and 11 depend from independent claim 5, claims 6-9 and 11 are also not anticipated by, or rendered obvious in view of, Jo et al. Thus, it is submitted that the rejections of claims 5, 6-9, and 11 be withdrawal.

With regard to independent claim 17, Applicant submits that claim 17 includes similar features embodied in claims 1 and 5 (and discussed above). According to the above discussion on the patentability of claim 1, it is submitted that the multi-frequency antenna as claimed in claim 17 are not disclosed by (nor is it suggested by) Jo et al. In particular, there is no disclosure or suggestion by Jo et al. of an antenna body including first and second radiation arms wherein the first and second radiation arms are arranged in symmetrically inward spiral form, share the feed-in terminal, and form a first current path and a second current path which realize the first and second operational frequencies respectively, as defined by claim 17. Accordingly, it is respectfully submitted that claim 17 is not anticipated by (or rendered obvious in view of) Jo et al.

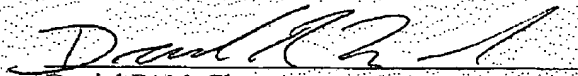
CONCLUSION

In view of the foregoing, it is believed that all pending claims are in proper condition for allowance. If the Examiner believes that a telephone conference would expedite the examination of the above-identified patent application, the Examiner is invited to call the undersigned.

No fee is believed to be due in connection with this amendment and response to Office Action. If, however, any fee is believed to be due, you are hereby authorized to charge any such fee to deposit account No. 20-0778.

Respectfully submitted,

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